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ASTRONOMICAL OBSERVATIONS MADE AT THE ISLAND OF BARBADOS; AT WILLOUGHBY FORT; AND AT THE OBSERVATORY ON CONSTITUTION HILL,

Both adjoining to BRIDGE TOWN.

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BRITISH MUSEUM

Aſtronomical Obſervations made at the Iſland of Barbados; *at* Willoughby Fort; *and at the Obſervatory on* Conſtitution Hill, *both adjoining to* Bridge Town.

[Read December 20, 1764.]

N. B. All the obſervations of the firſt ſatellite of Jupiter were made with a two foot reflector made by Mr. Bird, having an aperture of $3\frac{8}{10}$ inches in diameter, except where they are marked as made with my 18 inch reflector made by Mr. Short, having an aperture of four inches and an half in diameter. And the eclipſes of the other ſatellites were all obſerved with the 18 inch teleſcope, except a few marked as made with Mr. Bird's two foot reflector. The latitude of Willoughby Fort is 13.° 5′ N. and that of the Obſervatory 13.° 5.′ 15″ N. This agrees with the latitude I obſerved when our ſhip came to anchor at our firſt arrival in Carliſle Bay, which, carefully calculated, and reduced to St. Michael's Church, gives 13.° 5.′ 30″ for its latitude. The Obſervatory is about 200 yards due eaſt of the church, and Willoughby Fort is about 1600 feet diſtant from the ſame, bearing S. W. So that the Obſervatory is about 15″ of longitude, or 1″ of time to the eaſt of Willoughby Fort. The latitudes of Willoughby Fort and the Obſervatory, ſet down above, reſult from altitudes of the ſun taken with a baſon of quick-ſilver by the braſs Hadley's ſextant made by Mr. Bird, being calculated from them, and the apparent time known from equal altitudes of the ſun taken with the equal altitude inſtrument.

At Willoughby Fort.

1763	Appt Time.			
Nov.	H	′	″	
☉ 13	15	5	38	Immerſion of 1st Satellite of Jupiter.
♀ 18	5	44	41	☉ ſet totally, or his upper limb ſet in the ſea, height of my eye above the ſea about 10 foot.
☉ 20	13	21	15:	Imm. 2 Sat. of Jupiter. Air hazy and moon-ſhine.
	16	57	20:	Imm. 1 Sat. of Jupiter through thin clouds.
♂ 22	11	26	6	Imm. 1 Sat. of Jupiter.
♃ 24	13	52	29	Emerſion of ψ Cancri four magn. from the moon's dark limb, dubious to 5″, by taking my eye off the teleſcope for 10″.
Dec.				
♃ 1.	7	46	0::	Imm. 1 Sat. of Jupit. 18 inch teleſcope, magnifies 170. Air hazy; yet the ſatellite was ſeparate from the body of Jupiter.
♂ 6	12	10	45	Emerſ. 3 Sat. of Jupit. 18 inch magnifies, 170.
	17	21	4::	Emerſ. 1 Sat. of Jupit. low towards the horizon. 18 inch teleſcope.
♃ 8	10	24	55	Emerſ. 2 Sat. of Jupit. 18 inch mag. 170 Sat. at a ſenſible.
	11	46	35	Emerſ. 1 Sat. of Jupit. Sat. at a very ſenſible diſtance from Jupiter's body.
♃ 15	12	59	46	Emerſ. 2 Sat. of Jupiter.
	13	37	9	Emerſ. 1 Sat. of Jupiter.
♄ 17	8	5	46:	Emerſ. 1 Sat. of Jupiter. Air hazy.
☿ 21	14	12	0	A ſmall teleſcopic ſtar preceded Jupiter's centre 1.′ 34″ in right aſcenſion, and was 7″ N. of the ſame in declination.
♃ 22	15	28	35	Emerſ. 1 Sat. of Jupiter.
	15	35	35::	Emerſ. 2 Sat. of Jupiter. 2 foot teleſcope. Almoſt touched the 1 Sat. at the emerſion.
♄ 24	9	56	20	Emerſ. 1 Sat. of Jupiter.

At the Observatory.

1764 Jan.	H	′	″	
♄ 7	13	39	43:	Emerſ. of 1 Sat. of Jupiter. Air a little hazy, but Jupiter ſufficiently bright.
☽ 9	8	7	20	Emerſ. 1 Sat. of Jupiter.
	8	31	18	A teleſcopic ſtar (inſerted in Senex's map of the Zodiac) in the line of the moon's horns produced, and ½ a minute diſtant from moon's ſouth horn.
	10	2	8	Emerſ. of 2 Sat. of Jupiter.
☽ 16	9	59	38	Emerſ. of 1 Sat. of Jupiter.
	12	37	59	Emerſ. of 2 Sat. of Jupiter.
☿ 18	9	47	46	Imm. of 3 Sat. of Jupiter.
	12	0	13	Emerſ. of 3 Sat. of Jupiter.

Appt

1764 Jan.	App^{t} Time H	′	″		°	′	″
♄ 21	10	59	28	χ Leonis (which was occulted by the ☽ this night in Europe) precedes ☽'s ſubſequent limb in right aſcenſion by the parallactic wires of my 18 inch teleſcope.	2.	8.	30
	11	23	18		2.	17.	46
☽ 23	11	52	36	Emerſ. of 1 Sat. of Jupiter. Emerg'd inſtantaneouſly.			
☿ 25	6	20	51	Emerſ. of 1 Sat. of Jupiter. A good obſervation; though only 40′ after ſun ſet, ſufficiently dark.			
Feb.							
☿ 8	9	43	24	A ſtar 6.7 magn. in Aries, in line of ☽'s horns, produced 1′ S. of ☽'s ſouth horn. Certain to 10″.			
	10	9	19	Emerſ. of 1 Sat. of Jupiter.			
♀ 17	8	24	39	Occultation of *l* Leonis 6 magn. by ☽'s bright limb, certain to 5″. Full moon this day.			
☽ 20	11	50	32	The Virgin's ſpike precedes ☽'s ſubſequent limb in right aſcenſion by parallactic wires.	1°	51′	11″
	12	7	6		1	57	33
	15	7	37	Ditto by tranſit inſtrument upon the meridian	2	55	28
				N. B. The Virgin's ſpike was occulted by the ☽ this night in Europe.			
♃ 23	7	54	8	Internal contact of one of Jupiter's ſatellites, with his eaſt limb at its entrance upon his body.			
	7	54	44	Sat. diſappears. Suppoſe it has been viſible 36″ upon his body.			
	8	5	3	Emerſ. of 3 Sat. of Jupiter.			
	13	48	46	Antares follows ☽'s ſubſequent limb in right aſcenſion by parallactic wires of 18 inch teleſcope.		8.′	10.″
♀ 24	8	30	42	Emerſ. of 1 Sat. of Jupiter.			
March							
♂ 6	7	5	12	Emerſ. of 2 Sat. of Jupiter. Air very clear.			
♃ 8	7	2	43	Emerſ. of *c* Pleiadum from the ☽'s bright limb, certain to 10″.			
♄ 10	7	21	46	β Tauri, 2 magn. precedes ☽'s preceding limb in right aſcenſion by parallactic wires.	1.°	55′	28″
	9	24	49		2	41	26
☽ 12	9	49	22½	Occultation of υ Gemini 5 magn. by ☽'s dark limb.			
	11	9	15	Emerſ. of ditto from ☽'s bright limb, certain to 10″.			
♂ 13	7	56	7	Occultation of 2 υ Cancri by ☽'s dark limb.			
	9	13	29	Occultation of 3 υ Cancri by ☽'s dark limb.			
♀ 16	11	17	18	Occultation of σ Leonis 4.5 magn. by ☽'s dark limb.			
♄ 17 Eclipſe of ☽	6	41	28	Beginning of the eclipſe of the ☽:			
	7	26	11	Shadow at middle of Mount Ætna.			
	7	36	29	Shadow of the middle of Mount Hercules.			
	9	26	50	End of the eclipſe.			

N. B. I obſerved the beginning and end with an opera glaſs of Dollond's conſtruction.

App.

1764	App^t Time						
April	H	′	″				
♀ 6	8	28	11	Emerſ. of 3 Sat. of Jupiter.			
	8	33	30	3 Sat. arrived to its greateſt brightneſs.			
♀ 13	13	2	32	Imm. of β Virginis into ☽'s dark limb.			
	13	48	48	Emerſ. of ditto from ☽'s bright limb, certain to 10″.			
☉ 15	7	19	17	The Virgin's ſpike precedes ☽'s preceding limb in right aſcenſion by parallactic wires.		49.′	43″
				N. B. It was occulted this night in Europe.			
May							
♃ 10	7	7	47	Imm. of σ Leonis 4.5 magn. into ☽'s dark limb.			
June							
☿ 6	7	41	4	Imm. of χ Leonis 4.5 magn. into ☽'s dark limb.			
	8	53	33	Emerſ. of ditto from ☽'s bright limb. Certain to 5″.			
♃ 14	11	13	14	τ Sagittarii 4 magn. precedes ☽'s ſubſequent limb in right aſcenſion by parallactic wires.	1.°	8.′	46″
July							
☽ 9	9	51	56	Antares follows ☽'s preceding limb in right aſcenſion by parallactic wires.	3.°	8.′	48″
	13	22	27		1	32	0
♃ 12	8	39	11	τ Sagittarii 4 magn. prec. ☽'s prec. limb in right aſcenſion by parallactic wires.	6	21	33
	10	31	23		7	9	19
Aug.							
☉ 5	9	1	28	Occultation of ϖ Scorpii 3 magn. by ☽'s dark limb.			
♀ 10	7	41	43	Occultation of χ Capricorni 6 magn. by ☽'s dark limb, but which was ſo near to being full, that the ſtar ſeemed to vaniſh in the illuminated arch terminating light and darkneſs.			

Beſides the above obſervations, I have taken a great many of the difference of right aſcenſion between the ☽'s enlightened limb and proper ſtars (which I have not yet reduced) by means of parallactic wires in the focus of my 18 inch reflecting teleſcope; from which, after making the requiſite calculations, I make no doubt of being able to deduce the moon's horizontal parallax in that latitude, and thence, by proportion, the equatorial parallax of the moon with great exactneſs, which has never been done yet in ſo direct a manner.

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THE END.